



Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

www.ahrq.gov

The Healthcare Cost and Utilization Project (HCUP)

**Data and Tools to Support Health Services
Research and Policy Analysis**

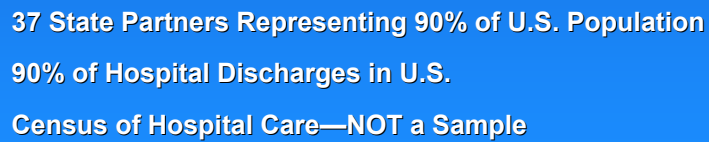
Agency for Healthcare Research and Quality

AcademyHealth ♦ March 2006

Healthcare Cost and Utilization Project (HCUP)



**THE LARGEST COLLECTION OF LONGITUDINAL,
ALL-PAYER, ENCOUNTER-LEVEL, HEALTH CARE DATA**



National Healthcare Disparities Report
www.qualitytools.ahrq.gov/disparitiesreport

2004

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JOURNAL of MEDICINE

PEDIATRICS®

Newsweek

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JAMA

Health
Services
Research

HSR

Volume 39
Number 5
October 2004

Guest Editor:
David A. Asch, MD, PhD, Boston
University School of Medicine

Research: Improving Medication Dispensing among Elderly Nursing Home Residents
 Peter J. Smith, PhD, University of Michigan
 Robert A. Hays, PhD, University of Michigan
 Robert A. Hays, PhD, University of Michigan
 Robert A. Hays, PhD, University of Michigan

Special Issues

Special Issue: Quality of Care for the Underserved

David A. Asch, MD, PhD, Boston University School of Medicine
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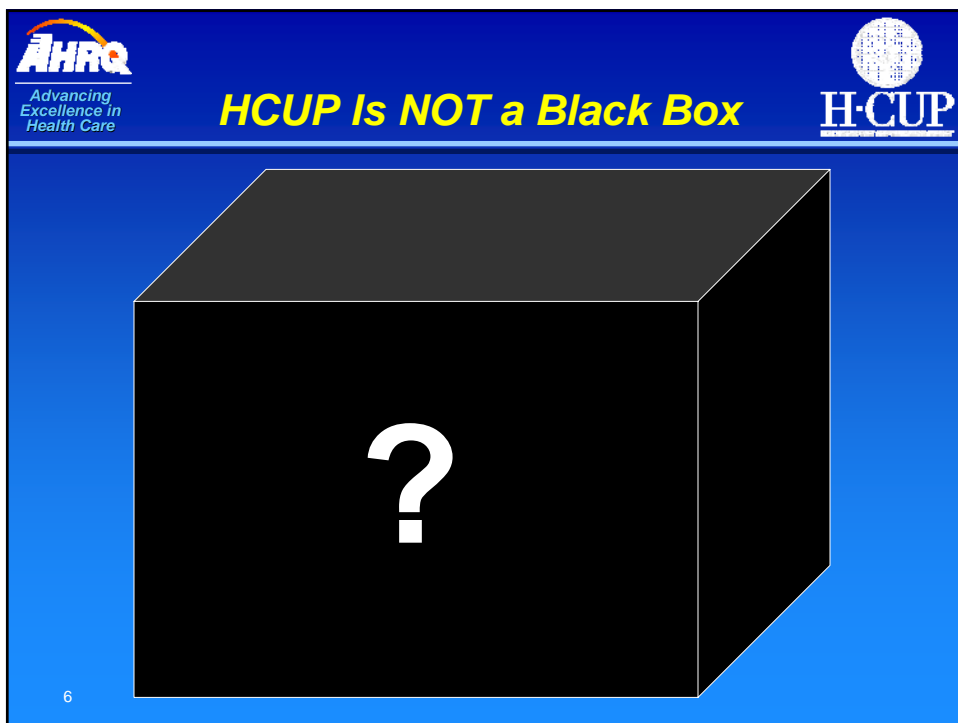
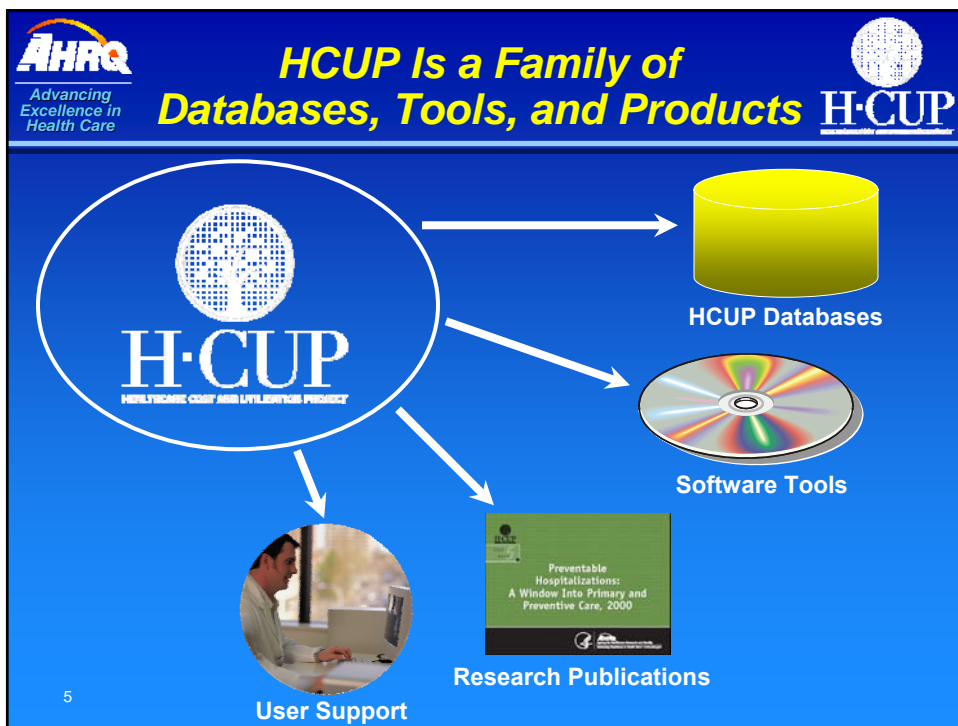
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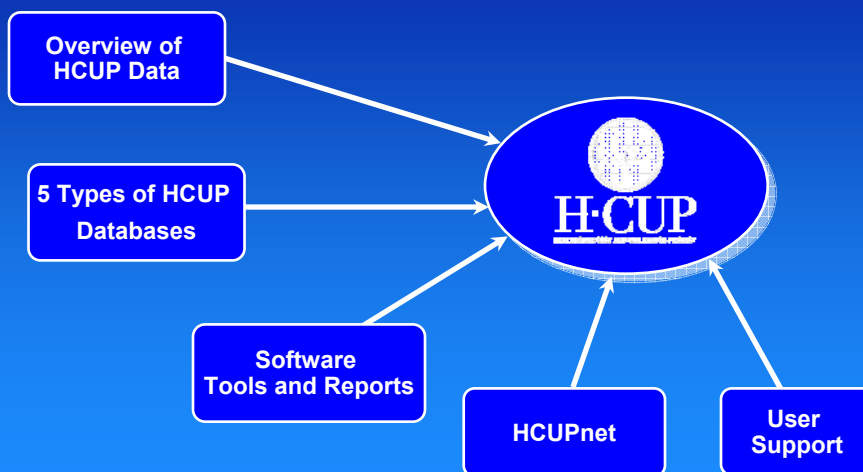


Goals for This Presentation

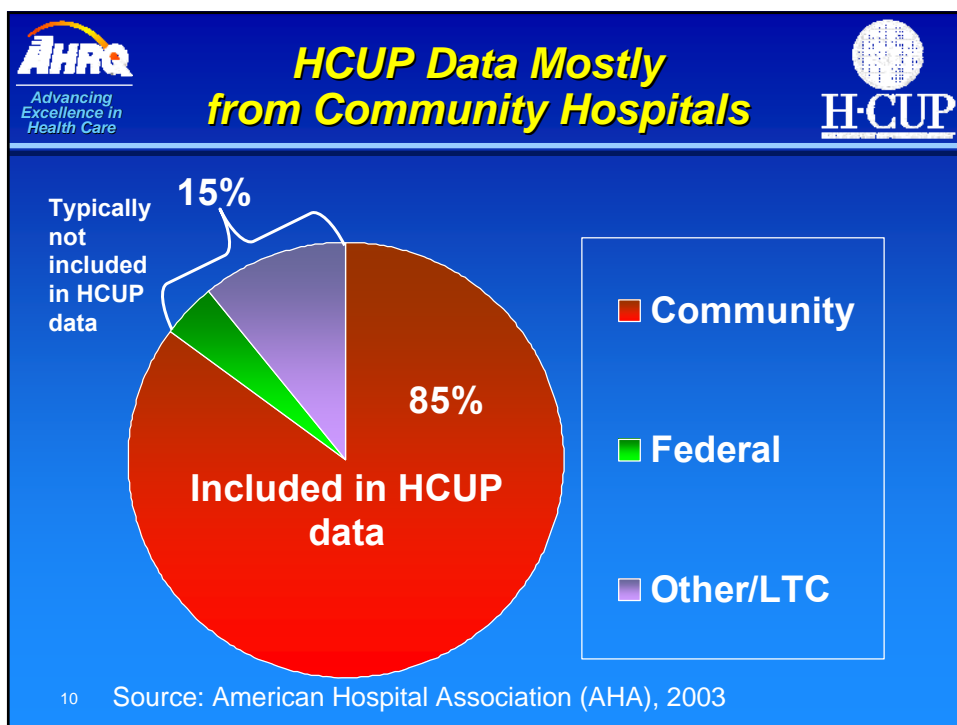
- Describe the HCUP databases
- Illustrate uses of HCUP
- Examine HCUP features and capabilities
- Provide information about obtaining HCUP databases

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Outline of Presentation



8



What Are Community Hospitals?

AHA definition of community hospitals: Non-Federal, short-term, general, and other specialty hospitals, excluding hospital units of other institutions (e.g., prisons)

Include these hospitals

OB-GYN
ENT
Orthopedic
Pediatric
Public
Academic medical
Centers
11 Short-term rehabilitation

Exclude these hospitals

Long-term care
Psychiatric
Alcoholism/chemical
dependency
Rehabilitation

What Types of Care Does HCUP Capture [and Not]?

Inpatient

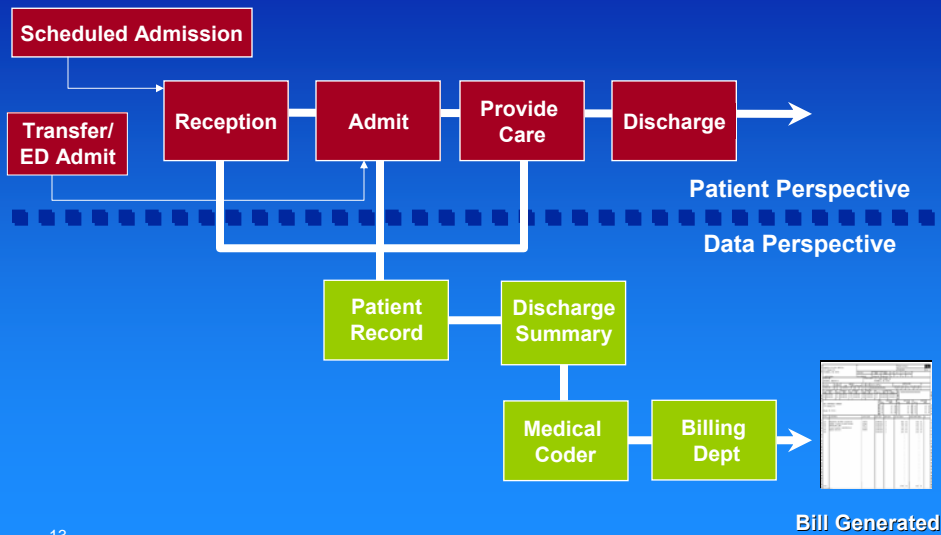
State Inpatient Databases (SID)
Nationwide Inpatient Sample (NIS)
Kids' Inpatient Database (KID)

Outpatient

Emergency Room Visits
State Emergency Department
Database (SEDD)
Ambulatory Surgeries
State Ambulatory Surgery
Database (SASD)
[Office Visits]

[Pharmacy/Lab/Radiology]





Billing UB-92 Form

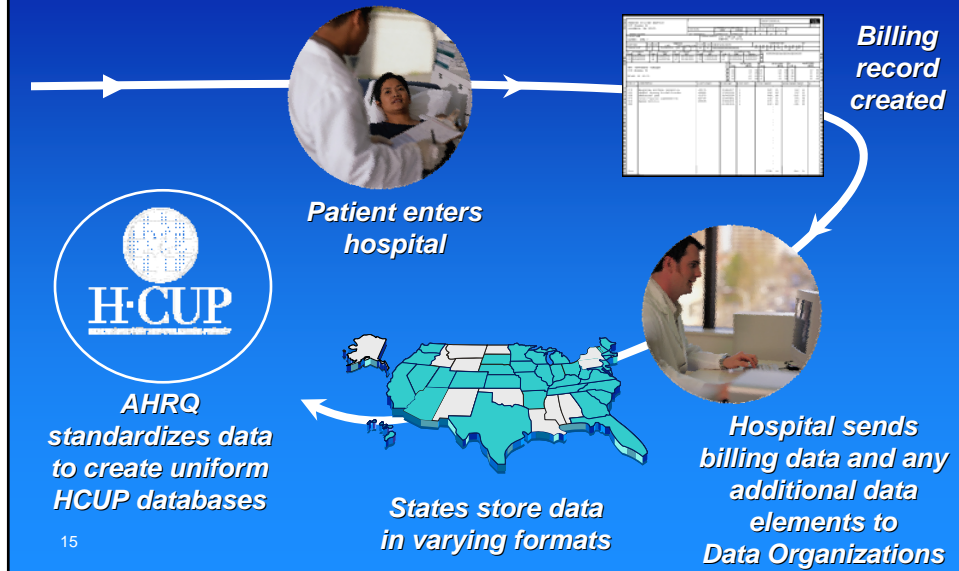
Demographic Data



Diagnoses
Procedures
Charges

[illegible]

The Making of HCUP Data



Why Do We Need Another Hospital Data Source?

Hospital Data Source	Description
National Hospital Discharge Survey (NHDS) – Centers for Disease Control and Prevention (CDC)	Hospital inpatient sample
Medical Expenditure Panel Survey (MEPS) – Agency for Healthcare Research and Quality (AHRQ)	Health care surveys that provide information about health care use and costs
Medicare Provider Analysis and Review (MedPAR) – Centers for Medicare and Medicaid Services (CMS)	Collection of hospital Medicare claims

Hospital Billing Data Have Benefits and Limitations

Benefits

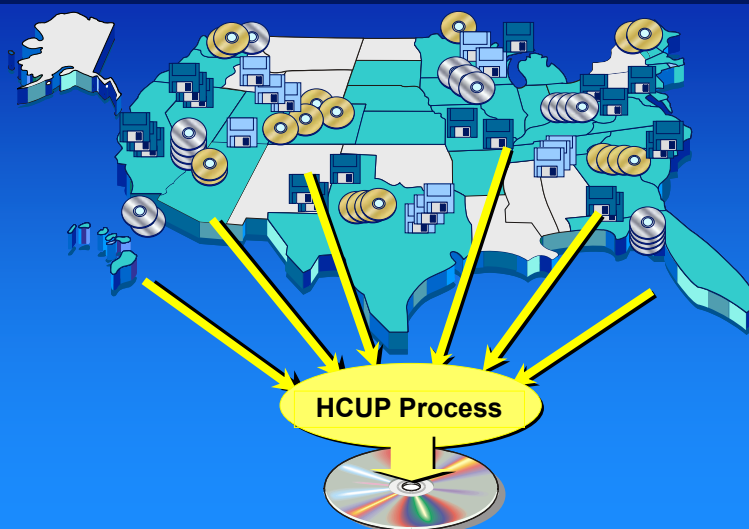
- Size
- Uniformity of codes
- Regularity of collection
- Ease of access
- All-payer

Limitations

- Sparse clinical detail
- Variable accuracy of coding
- No data on individuals outside hospital system

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37 States Contribute Data



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Current HCUP Partners

Arizona Department of Health Services
California Office of Statewide Health Planning & Development
Colorado Health & Hospital Association
Connecticut Chime, Inc.
Florida Agency for Health Care Administration
Georgia **GHA** An Association of Hospitals & Health Systems
Hawaii Health Information Corporation
Indiana Hospital & Health Association
Illinois Department of Public Health
Iowa Hospital Association
Kansas Hospital Association



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Current HCUP Partners

Kentucky Department for Public Health
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Division of Health Care Finance and Policy
Michigan Health & Hospital Association
Minnesota Hospital Association
Missouri Hospital Industry Data Institute
Nebraska Hospital Association
Nevada Department of Human Resources
New Hampshire Department of Health & Human Services
New Jersey Department of Health & Senior Services



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Current HCUP Partners

North Carolina Department of Health and Human Services

Ohio Hospital Association

Office for **Oregon** Health Policy & Research

Oregon Association of Hospitals and Health Systems (1996
data and forward)

Rhode Island Department of Health

South Carolina State Budget and Control Board

South Dakota Association of Health Care Organizations

Tennessee Hospital Association



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Current HCUP Partners

Texas Department of State Health Services

Utah Department of Health

Vermont Association of Hospitals and Health Systems

Virginia Health Information

Washington State Department of Health

West Virginia Health Care Authority

Wisconsin Department of Health and Family Services

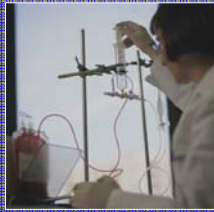


22

HCUP Has Five Databases



State Inpatient Databases



Nationwide Inpatient Sample



Kids' Inpatient Database



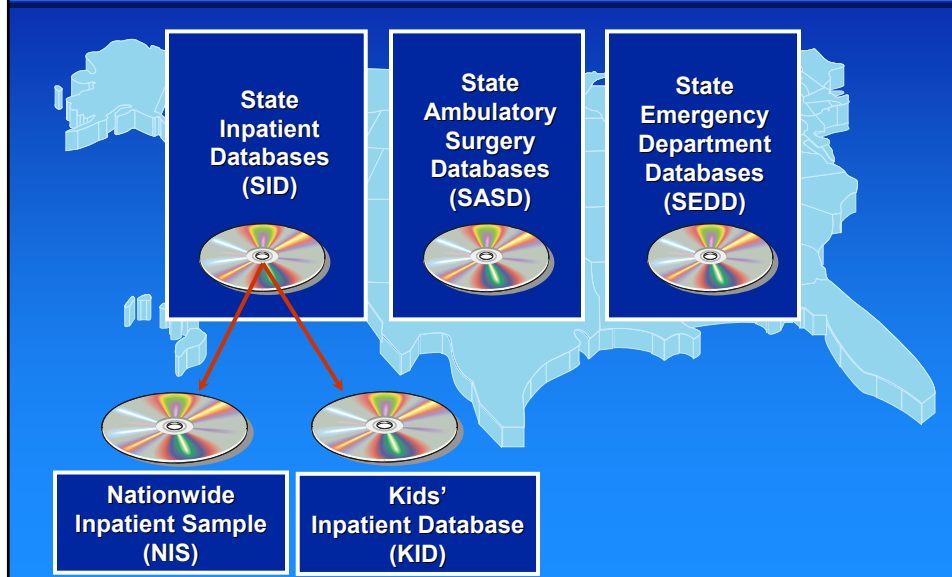
State Ambulatory Surgery Databases

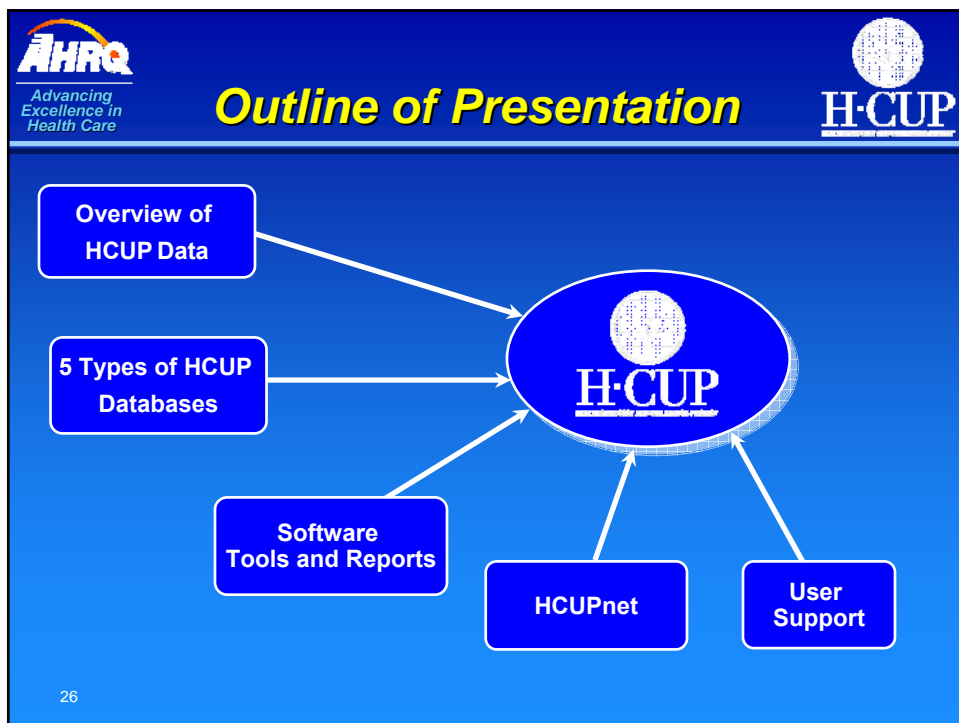
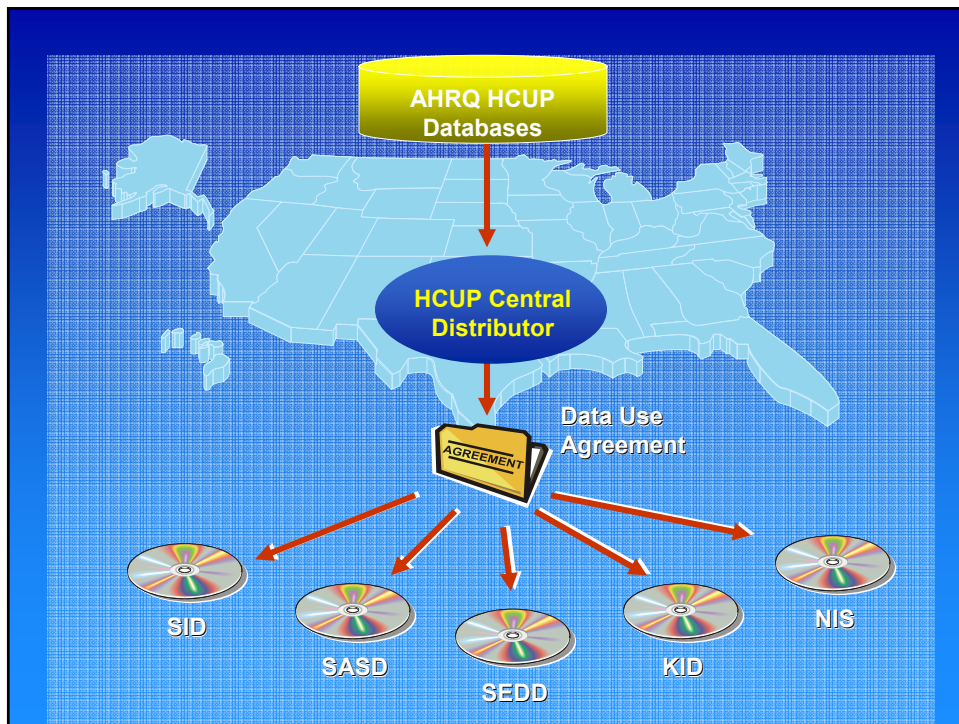


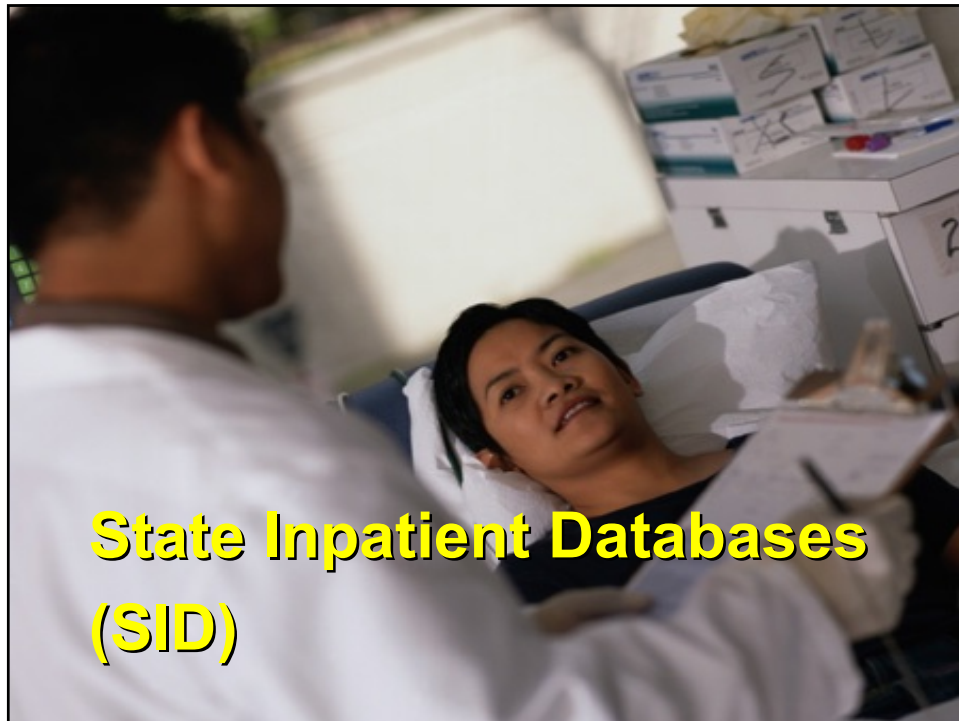
State Emergency Department Databases




HCUP Databases




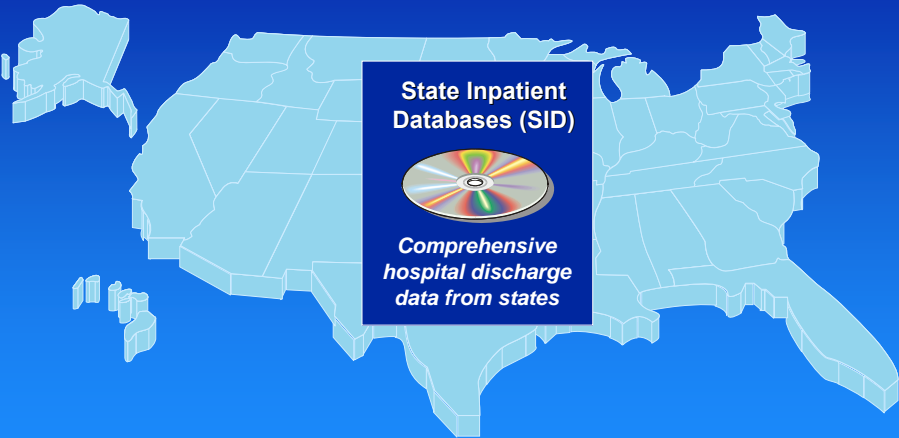







What are the State Inpatient Databases (SID)?





State Inpatient Databases (SID)



Comprehensive hospital discharge data from states

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What Is the Source for the SID?

**Inpatient hospital data: uniform billing data
(UB-92)**

- **Data organization provides data to HCUP**
- **HCUP collects and standardizes data to
create SID**

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SID File Structure

- **Range of file sizes**
 - ~ 56,000 to 3.9 million records per state
- **Core set of variables**
 - Patient demographics
 - Expected payment source
 - All listed diagnoses and procedures
- **State-specific variables**
 - Patient race/ethnicity
 - Encrypted patient identifier
 - Patient ZIP code
 - AHA hospital identifier

30

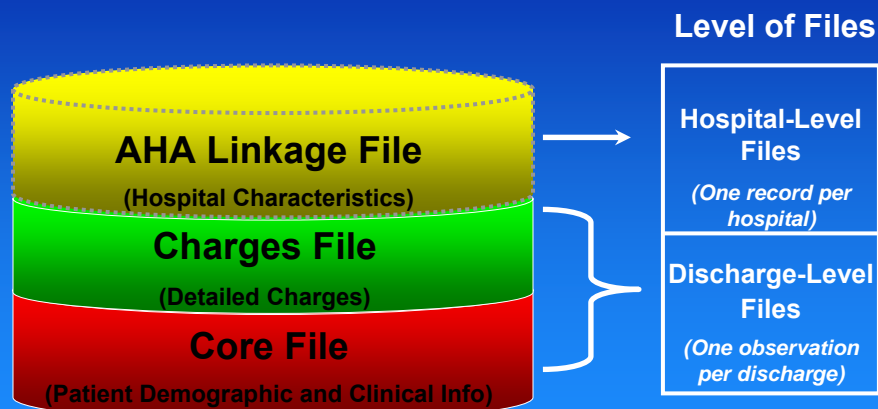
How Do the SID Differ from State Data Files?

Unique attributes of the SID:

- Subset of data elements
- Value-added data elements
- Uniformly coded across the states
- Encrypted identifiers
- Standard data quality checks
- Developed for cross-state analysis

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The SID Contains Three Types of Data Files



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Some Data Elements Vary by State

- Race/Ethnicity
- Patient county
- Patient ZIP Code
- Severity of illness
- Birthweight
- Procedure date (days from admission)
- Primary payer details
- Secondary payer
- Detailed charges
- Patient identifiers encrypted
- Physician identifiers encrypted
- Physician specialty
- Hospital identifier unencrypted

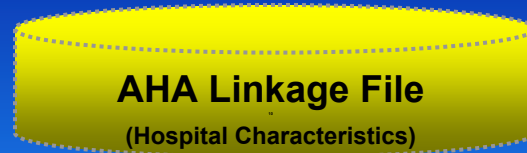
35

Charges File Contains Detailed Charge Information



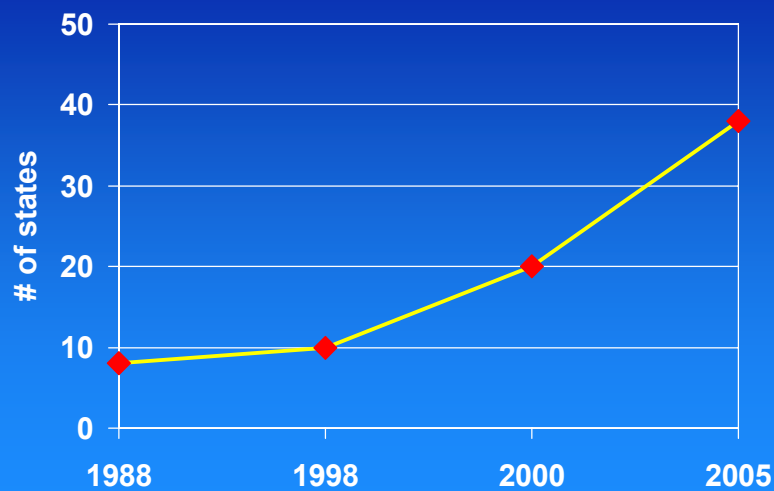
Charges \neq Costs
Charges \neq Payments

36



Not all SID include AHA linkage
data elements:
Individual states decide

37



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States Releasing SID through HCUP Central Distributor

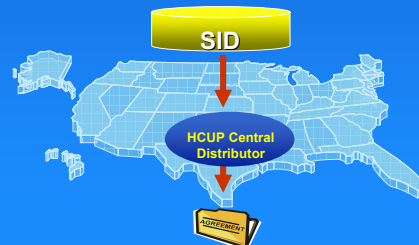
1990 - 2003

- Arizona
- California
- Colorado
- Florida
- Iowa
- Kentucky (2000→)
- Maine (1999→)
- Maryland
- Massachusetts
- Michigan (1999→)
- Nebraska (2001→)
- New Jersey
- New York
- North Carolina (2001→)
- Oregon
- South Carolina
- Utah (1997→)
- Washington
- West Virginia (2000→)
- Wisconsin

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SID: Availability and Prices

- SID available for 1990 - 2003
- Availability and prices vary by state and year
~ \$20 per data-year to ~ \$3,000 per data-year



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The SID Supports Interesting Research Topics

- Enumeration of all hospitals and discharges within market areas or states
- Investigation of questions unique to one state
- Comparison of data from two or more states
- Research of market areas or small area variation analyses
- Identification of state-specific trends in inpatient care utilization, access, charges, and outcomes

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Using the SID: A Research Example

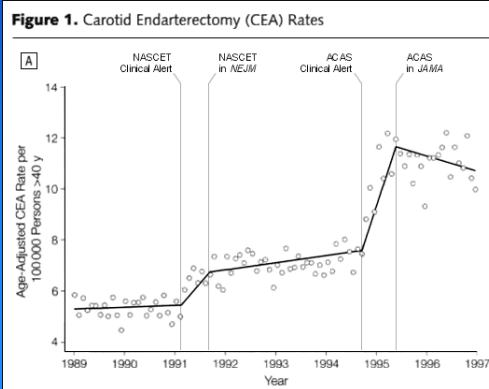


Relation between Prepublication Release of
Clinical Trial Results and the Practice of
Carotid Endarterectomy

Gross CP, Steiner CA, Bass EB, Powe NR • 2000

42

Prepublication dissemination of CEA trial results with clinical alerts was associated with prompt and substantial changes in medical practice



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SID Database Documentation - Microsoft Internet Explorer provided by The MEDSTAT Group

File Edit View Favorites Tools Help

Address <http://www.hcup-us.ahrq.gov/db/state/siddbdocumentation.jsp>

Skip Navigation

SID Database Documentation
The SID are a set of longitudinal State-specific hospital inpatient databases included in the HCUP family. These databases are created by AHRQ through a Federal-State-Industry partnership.

[Home](#) [Databases](#) [Tools & Software](#) [Reports](#) [Technical Assistance](#)

State Inpatient Databases (SID)

The SID are State-specific files that contain all inpatient care records in participating states. Together, the SID encompass about 85 percent of all U.S. hospital discharges. The uniform format of the SID helps facilitate cross-state comparisons. In addition, the SID are well suited for research that requires complete enumeration of hospitals and discharges within geographic areas or states. The following links provide database documentation for the SID.

Some documents are provided in Adobe® Acrobat® (PDF) format. The amount of time needed to access a document depends on your machine, browser, and Internet connection. PDF files require the Adobe® Acrobat® Reader™, which can be downloaded free of charge from [Adobe®](#). [PDF Help](#) provides instructions on how to work with PDF files.

Restrictions on the Use of the SID

- [SID Data Use Agreement](#) (PDF file, 47 KB)

Description of SID Files

- [Introduction to the SID](#) (PDF file, 214 KB)
- [HCUP Quality Control Procedures](#) (PDF file, 104 KB)
Describes procedures used to assess data quality
- [File Composition](#) (PDF file, 63 KB)
Describes types of hospitals and types of records included in each SID

HCUP Tools: Labels and Formats

- [Clinical Classifications Software \(CCS\)](#)

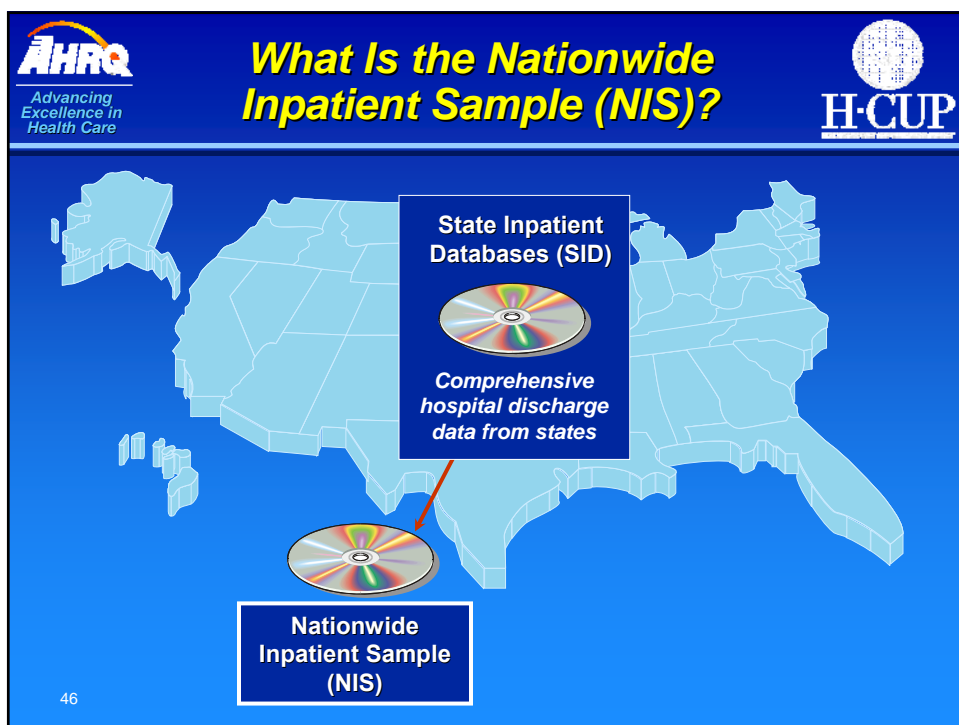
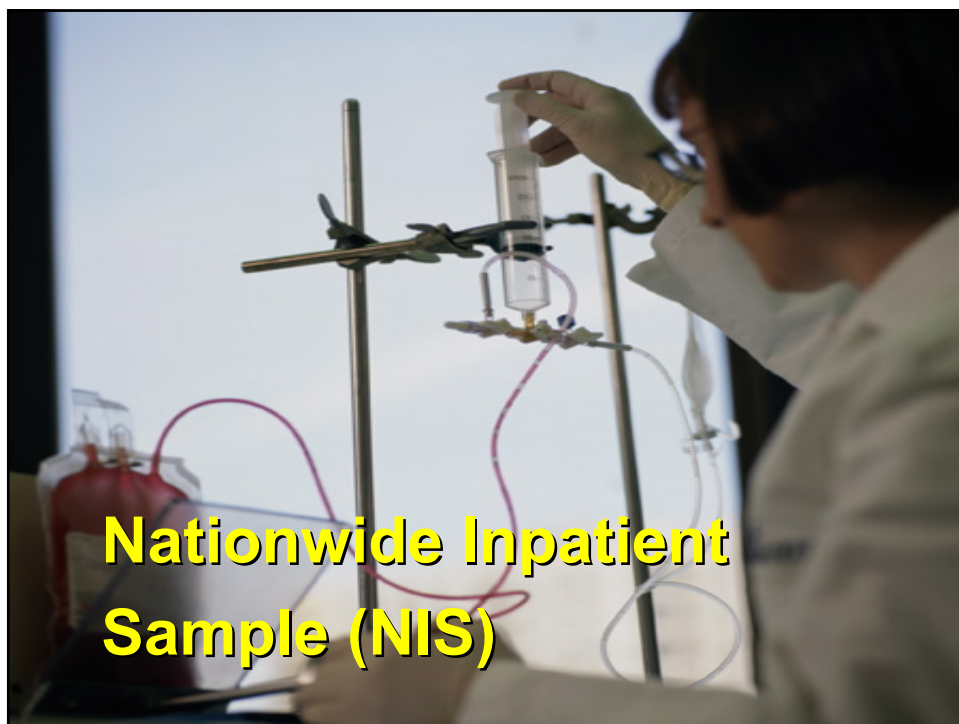
Availability of Data Elements by State

- [1998-2002](#) (PDF file, 151 KB)
- [1995-1997](#) (PDF file, 133 KB)
- [1990-1994](#) (PDF file, 100 KB)

Description of Data Elements in the SID

- [HCUP Coding Practices](#) (PDF file, 16 KB)
Describes how HCUP data elements are coded
- [HCUP Hospital Identifiers](#) (PDF file, 82 KB)
Describes data elements that characterize individual hospitals
- [Data Elements A-M](#) (PDF file, 1,005 KB)
- [Data Elements N-Z](#) (PDF file, 1,011 KB)

Done Internet



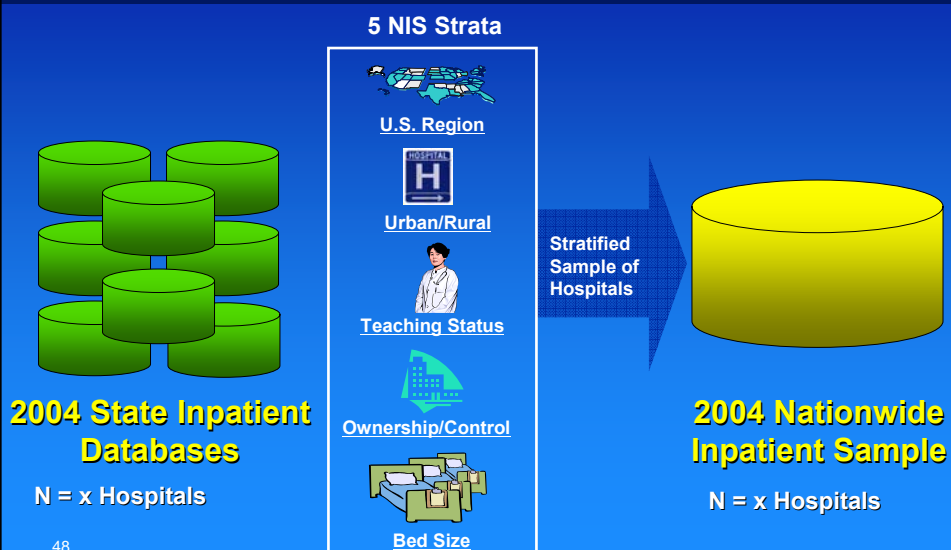
Purpose of the NIS

- Allows national and regional studies of inpatient hospital utilization and charges*

* Not recommended for state-level analyses

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The NIS Is a Stratified Sample of Hospitals from the SID



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Differences Between SID and NIS

■ State Inpatient Databases (SID)

- Census of hospitals
- More data elements
- Encrypted patient IDs in some states

■ Nationwide Inpatient Sample (NIS)

- Sample of hospitals
- Fewer data elements, but all standardized
- Many value-added data elements
 - Severity measures

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Four Sets of Severity Measures

- All Patient Refined Diagnosis Related Groups (APR-DRGs) – *3M Health Information Systems*
- All-Payer Severity-Adjusted Diagnosis Related Groups (APS-DRGs) – *HSS, Inc.*
- Disease Staging – *Medstat*
- AHRQ comorbidity measures – *Elixhauser et al., Medical Care*

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The NIS Has Many Value-Added Variables

- **Hospital characteristics**
 - Region
 - Urban/rural
 - Teaching status
 - Ownership/control
 - Bed size
- **Clinical Classification Software (CCS)**
 - AHRQ clinical grouper for ICD-9-CM codes
- **Median income for patient's ZIP Code**

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The NIS Includes Some Specialty Hospitals

Includes these specialty hospitals

OB-GYN
ENT
Orthopedic
Pediatric
Public
Academic medical
centers
Short-term
rehabilitation

Excludes these specialty hospitals*

Long-term care
Psychiatric
Alcoholism/chemical
dependency
Rehabilitation

*Note: The NIS includes discharges for these types of care if the care was received at community hospitals.

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Key Differences Between the 1988, 1993, and 2003 NIS

	<u>1988</u>	<u>1993</u>	<u>2004</u>
# HCUP states	8	17	37
# Hospitals	759	913	xxx
# Unweighted records	5,265,756	6,538,976	xxx
# Weighted records	35,171,448	34,714,530	xxx

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Statewide Data Systems Participating in NIS

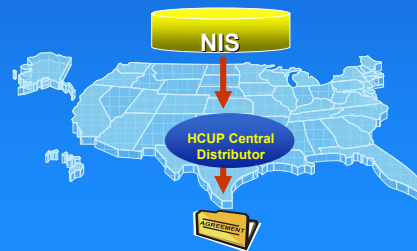
Data Year	# of States	States
1988	8	CA, CO, FL, IA, IL, MA, NJ, WA
1989-1992	11	+ AZ, PA, WI
1993-1994	17	+ CT, KS, MD, NY, OR, SC
1995-1996	19	+ MO, TN
1997-1998	22	+ HI, UT, GA
1999	24	+ ME, VA
2000	28	+ KY, NC, TX, WV
2001	33	+ MI*, MN, NE, RI, VT
2002	35	+ NV, OH, SD [AZ not available]
2003	37	+ IN, NH [ME not available]
2004	37	xxx

*MI entered HCUP partnership in 1999.

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NIS: Availability and Prices

- | | |
|-----------------------------|---------------------|
| ■ 2000 - 2004 | \$200 per data-year |
| ■ 1993 - 1999 | \$160 per data-year |
| ■ 1988 - 1992 | \$322 |
| ■ Student Price (All Years) | \$20 per data-year |



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The NIS Can Be Used to Study Many Topics

- Use of and charges for hospital services
- Medical practice variation
- Medical treatment effectiveness
- Quality of care and patient safety
- Impact of health policy changes
- Diffusion of medical technology

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Newsweek
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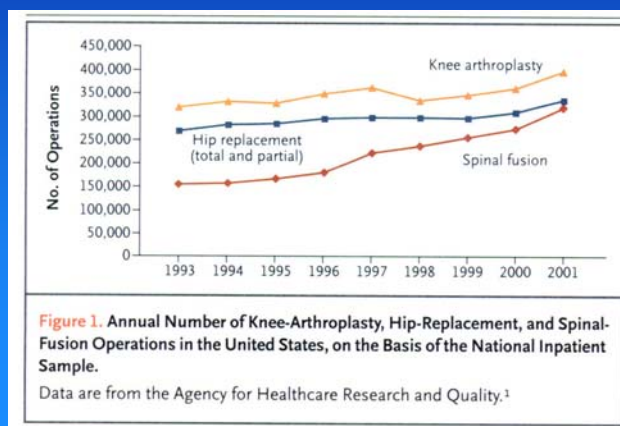
Spinal-Fusion Surgery – The Case for Restraint

Deyo RA, Nachemson A, Mirza SK • 2004

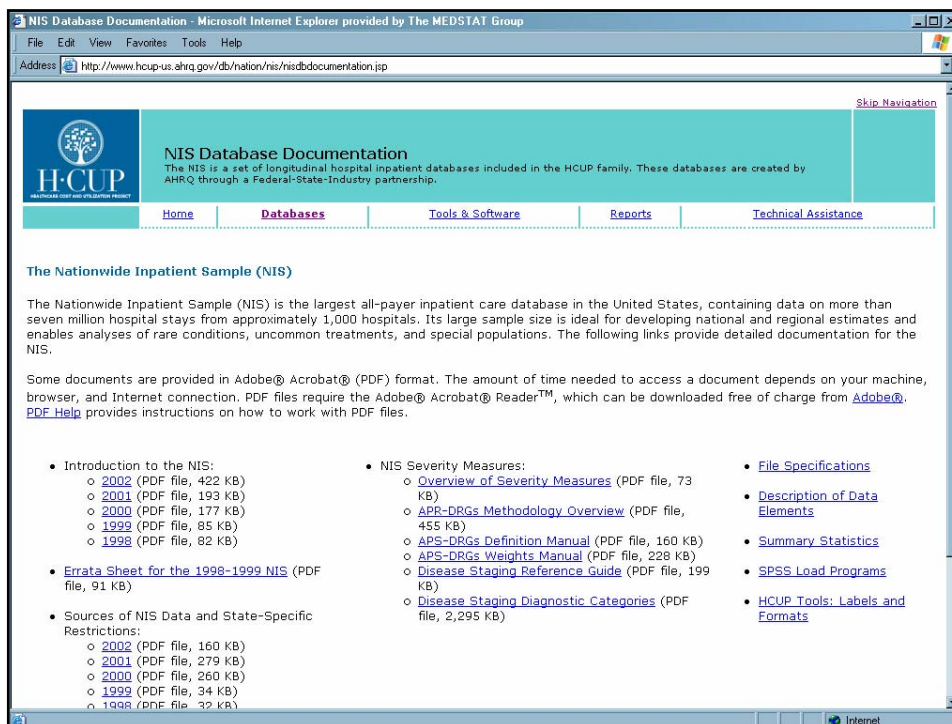
57

Findings

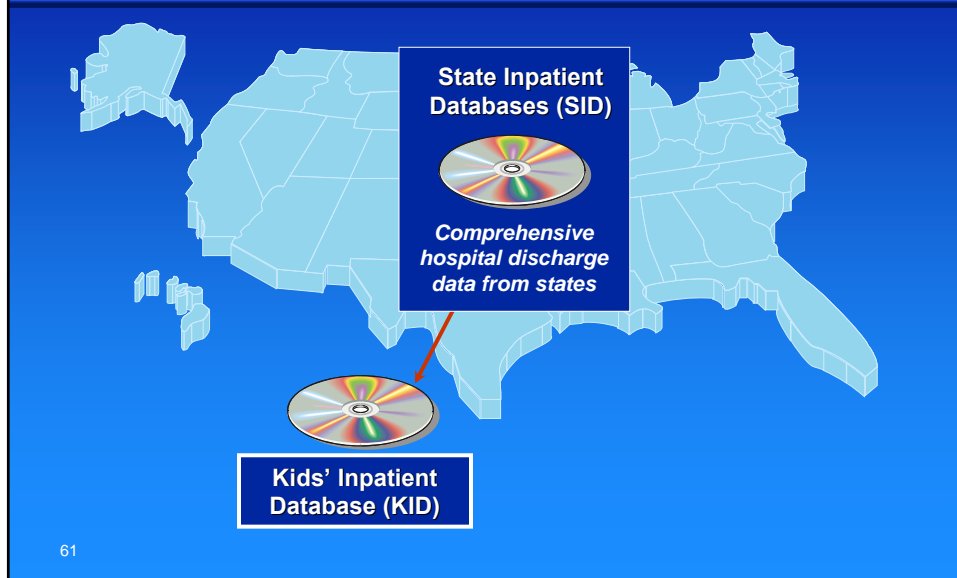
Spinal-fusion surgery is undoubtedly effective for some conditions in some patients; however, there is concern that the procedure may be overused.



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What Is the Kids' Inpatient Database (KID)?



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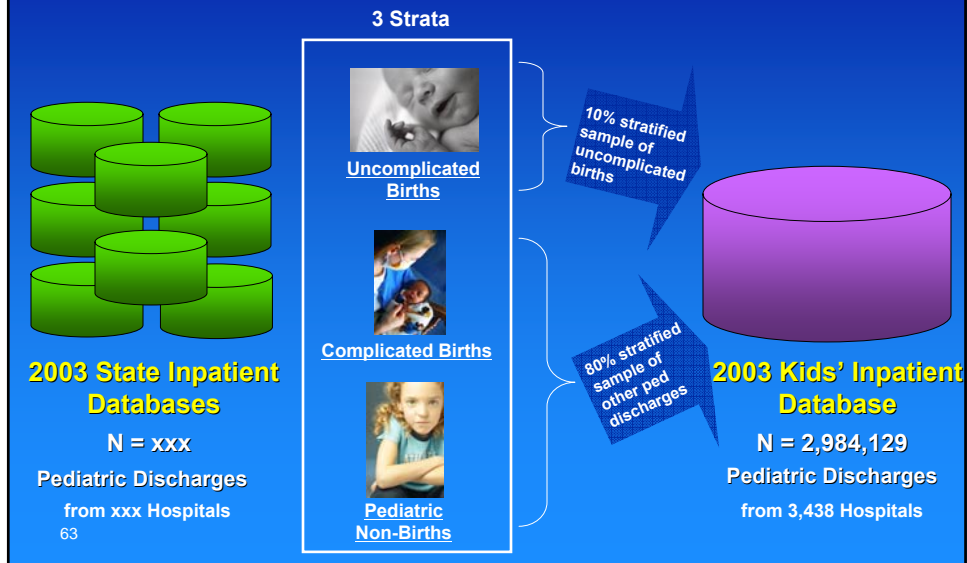
Purpose of the KID

- Allows national and regional studies of inpatient hospital utilization and charges for children and adolescents*

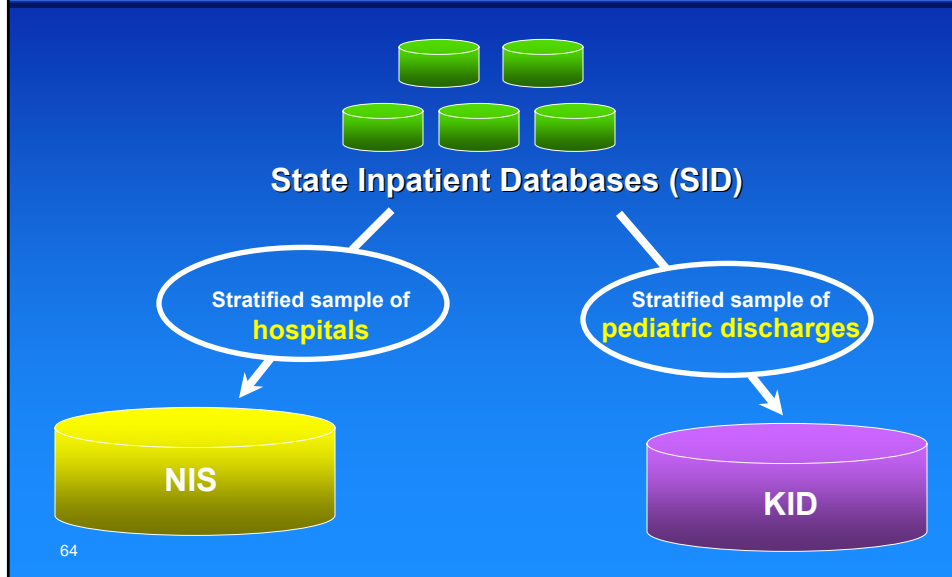
* Not recommended for state-level analyses

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The KID Is a Stratified Sample of Discharges from the SID



Differences Between NIS and KID



Key Differences Between the 1997, 2000, and 2003 KID

	<u>1997</u>	<u>2000</u>	<u>2003</u>
# HCUP states	22	27	36
# Hospitals	2,521	2,784	3,438
# Unweighted records	1.9 million	2.5 million	3.0 million
# Weighted discharges	6.7 million	7.3 million	7.4 million
Age inclusion criteria	≤ 18 years	≤ 20 years	≤ 20 years

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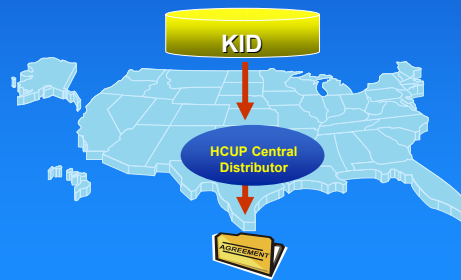
Statewide Data Systems Participating in KID

Data Year	# of States	States
1997	22	AZ, CA, CO, CT, FL, GA, HI, IL, IA, KS, MD, MA, MO, NJ, NY, OR, PA, SC, TN, UT, WA, WI
2000	27	+ KY, ME, NC, TX, VA, WV [IL not included]
2003	36	+IL, IN, MI, MN, NE, NH, NV, OH, RI, SD, VT (ME and PA not included)

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KID: Availability and Prices

- 1997, 2000, 2003 KID \$200 per data-year
- Student price \$20 per data-year



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The KID Can Enable Child-Related Research

- Enables studies of common and rare pediatric conditions
- Permits exploration of the economic burden associated with specific child-related conditions
- Allows comparisons between pediatric and adult inpatient services in conjunction with the NIS

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PEDIATRICS®

Pediatric Patient Safety in Hospitals: A National Picture in 2000

Miller MR, Zhan C • 2004

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Findings

Patient safety events for hospitalized children have significant associations with increased LOS, total charges, and risk of in-hospital mortality.

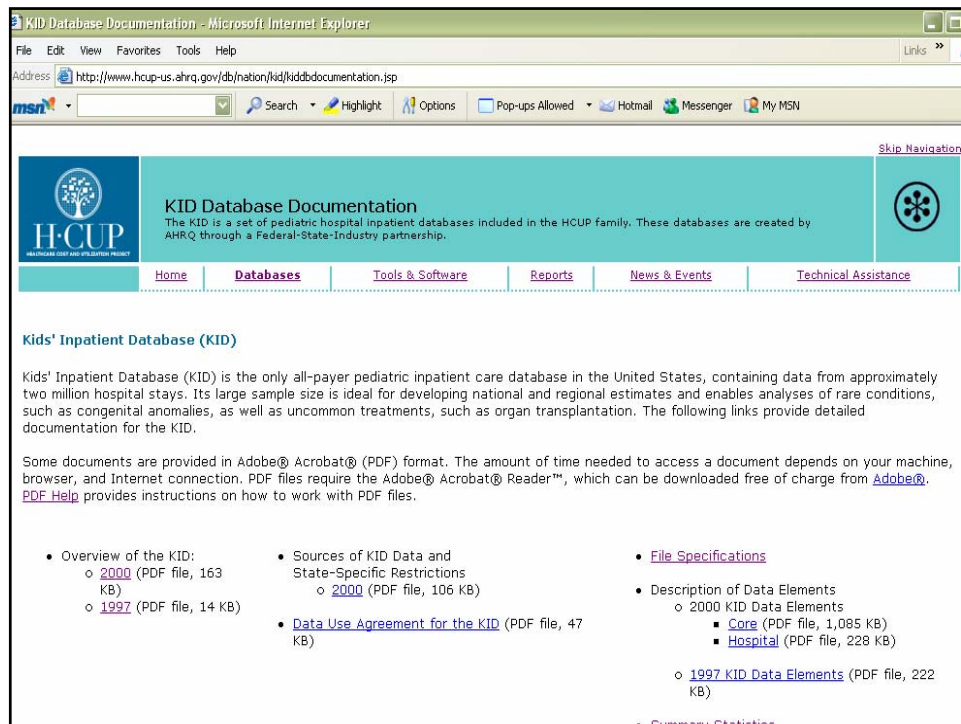
TABLE 3. Regression Analysis of Impact of Experiencing a PSI Event

Patient Safety Event	Increased LOS (Days [SE])	Increased Charges (Dollars [SE])	Increased In-Hospital Mortality, (OR [95% CI])
Anesthesia complication	NS	NS	NS
Death in low-mortality DRG	4.4 (0.33)	37 890 (1399)	NA
Decubitus ulcer	18 (0.6)	85 344 (2056)	3.5 (2.6–4.8)
Failure to rescue	–2 (0.4)	32 344 (2052)	NA
Foreign body left after procedure	5.7 (0.9)	31 366 (3262)	NS
Iatrogenic pneumothorax	11.6 (0.4)	61 991 (1222)	7.5 (5.0–11.4)
Infection as a result of medical care	30 (0.2)	121 010 (618)	2.2 (1.7–2.7)
In-hospital postoperative hip fracture	*	*	*
Postoperative hemorrhage/hematoma	7.9 (0.5)	75 932 (2700)	3.5 (2.4–5.1)
Postoperative physiologic/metabolic derangement	16.3 (1)	112 532 (5063)	45.8 (21.7–93.0)
Postoperative respiratory failure	24.4 (0.4)	140 807 (1979)	76.6 (51.6–113.6)
Postoperative pulmonary embolism/DVT	20 (0.4)	99 646 (2136)	2.8 (1.9–3.9)
Postoperative sepsis	26 (0.6)	117 815 (2768)	11 (6.9–17.5)
Postoperative wound dehiscence	21.1 (1.4)	76 737 (6778)	5.7 (2.1–15.0)
Technical difficulty with care	7.7 (0.2)	41 204 (813)	2.4 (1.7–3.4)
Transfusion reaction	*	*	*
Birth trauma	0.2 (0.05)	NS	1.3 (1.1–1.6)
Obstetric trauma—vaginal with instrumentation	0.1 (0.03)	NS	NS
Obstetric trauma—vaginal without instrumentation	NS	NS	NS
Obstetric trauma—cesarean section	NS	NS	NS

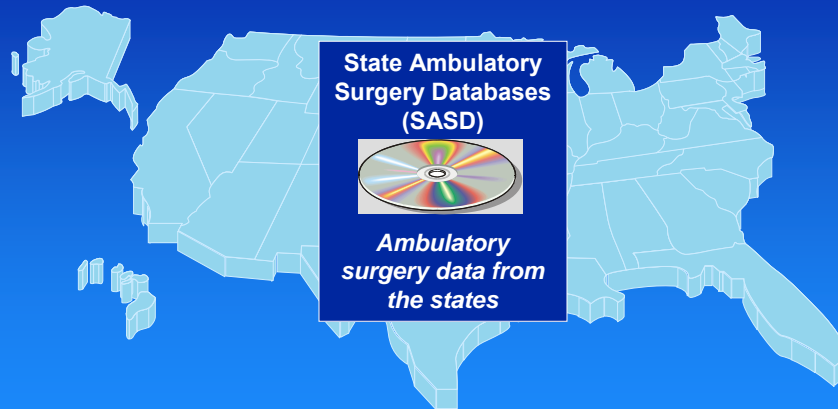
SE indicates standard error; NS, not significant; NA, not applicable.

* This PSI event had too few cases to permit regression analysis.

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What are the State Ambulatory Surgery Databases (SASD)?



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What Is the Source for the SASD?

Ambulatory surgery data:

Designated hospital beds; separate facilities with hospital affiliation included

Some data from free-standing centers

- Data organizations provides data to HCUP—collection varies by state
- HCUP collects and standardizes data to create SASD

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- **Range of file sizes**
 - ~ 105,000 to 2.7 million records per state
- **Core set of variables**
 - Patient demographics
 - Expected payment source
 - All listed diagnoses and procedures
- **State-specific variables**
 - Patient race/ethnicity
 - Encrypted patient identifier
 - CPT codes

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The SASD can be linked to the SID for
selected states



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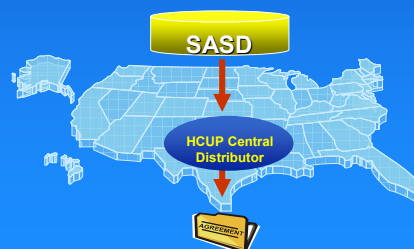
States with Ambulatory Surgery Databases

- Colorado
- Connecticut
- Florida
- Georgia
- Kentucky
- Maine
- Maryland
- Minnesota
- Missouri
- Nebraska
- New Jersey
- New York
- North Carolina
- Pennsylvania
- South Carolina
- Tennessee
- Utah
- Vermont
- Wisconsin*

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SASD: Availability and Prices

- SASD available for 1997 - 2004
- Availability and prices vary by state and year
~ \$20 per data-year to ~ \$3,000 per data-year



78

Many Potential Applications of the SASD

- Identify state-specific trends in ambulatory surgery utilization, access, charges, and outcomes
- Conduct market area research
- Compare inpatient surgery data with ambulatory surgery data
- Examine complications for ambulatory surgeries

79

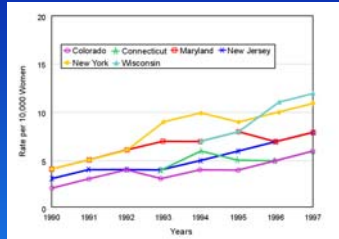
Using the SASD: A Research Example



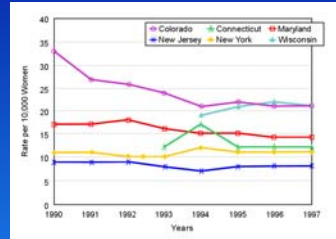
**The Impact of
Endometrial Ablation on
Hysterectomy Rates in
Women with Benign
Uterine Conditions in the
United States**

Farquhar CM, Naom S, Steiner CA • 2002

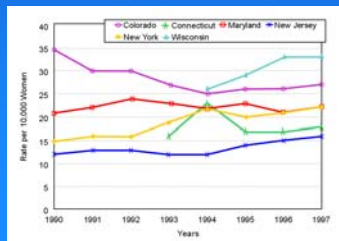
80



Rate of Endometrial Ablation



Rate of Hysterectomy



Endometrial ablation has not replaced hysterectomy, rather the combined procedure rates for benign uterine conditions have increased

Combined Rate of Hysterectomy and Ablation

81

SASD Database Documentation - Public - Microsoft Internet Explorer provided by The MEDSTAT Group

Address: <http://www.hcup-us.ahrq.gov/db/state/sasddbdocumentation.jsp>

SASD Database Documentation
The SASD are a set of longitudinal State-specific ambulatory surgery databases included in the HCUP family. The SASD capture surgeries in which patients are admitted and discharged on the same day. These databases are created by AHRQ through a Federal-State-Industry partnership.

[Home](#) [Databases](#) [Tools & Software](#) [Reports](#) [Technical Assistance](#)

State Ambulatory Surgery Databases (SASD)

The SASD are State-specific files that capture surgery records in which patients are admitted and discharged in the same day from ambulatory surgery sites. The uniform format of the SASD helps facilitate cross-state comparisons. In addition, the SASD are well suited for research that requires complete enumeration of hospital-based ambulatory surgeries within geographic areas or states. The following links provide detailed database documentation for the SASD.

Some documents are provided in Adobe® Acrobat® (PDF) format. The amount of time needed to access a document depends on your machine, browser, and Internet connection. PDF files require the Adobe® Acrobat® Reader™, which can be downloaded free of charge from [Adobe®](#). [PDF Help](#) provides instructions on how to work with PDF files.

Restrictions on the Use of the SASD

- [SASD Data Use Agreement](#) (PDF file, 47 KB)

Description of SASD Files

- [Introduction to the SASD](#) (PDF file, 184 KB)
- [HCUP Quality Control Procedures](#) (PDF file, 104 KB)
Describes procedures used to assess data quality
- [File Composition](#) (PDF file, 116 KB)
Describes types of hospitals and types of records included in each SASD

HCUP Tools: Labels and Formats

- [Clinical Classifications Software \(CCS\)](#)

Availability of Data Elements by State

- [1998-2002](#) (PDF file, 98 KB)
- [1997](#) (PDF file, 60 KB)

Description of Data Elements in the SASD

- [HCUP Coding Practices](#) (PDF file, 16 KB)
Describes how HCUP data elements are coded
- [HCUP Hospital Identifiers](#) (PDF file, 82 KB)
Describes data elements that characterize individual hospitals
- [Data Elements](#) (PDF file, 973 KB)




AHRQ *Advancing
Excellence in
Health Care*

**What are the State Emergency
Department Databases (SEDD)?**

H-CUP

**State Emergency
Department
Databases (SEDD)**



*Emergency
department data from
the states*

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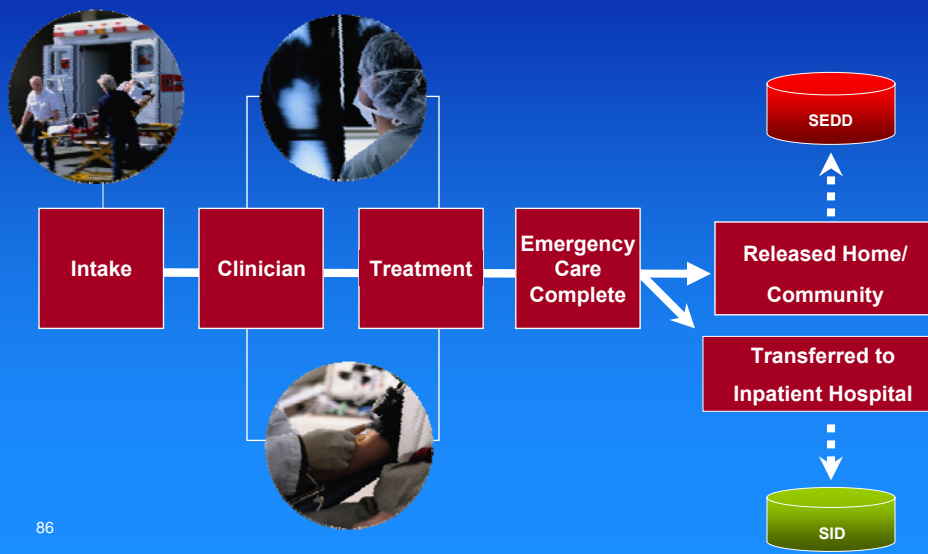
What is the Source for the SEDD?

Emergency department data: uniform billing data (UB-92), plus additional data elements, from hospital-affiliated emergency department sites

- Data organization provides data to HCUP
- HCUP collects and standardizes data to create SEDD

85

The Flow of Emergency Department Visits



86

- **Range of file sizes**
 - ~ 133,000 to 2.7 million records per state
- **Core set of variables**
 - Patient demographics
 - Expected payment source
 - All listed diagnoses and procedures
- **State-specific variables**
 - Patient race/ethnicity
 - AHA hospital identifier
 - CPT codes
 - Encrypted patient identifier

87

The SEDD can be linked to the SID
for selected states



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How Do the SEDD Compare to Other Databases?

- Number of visits benchmarks well against American Hospital Association (AHA) Annual Survey
- Percent of visits related to injury is similar to the National Hospital Ambulatory Medical Care Survey (NHAMCS)

89

Some Interesting Ways to Use the SEDD for Research

- Injury surveillance
- Trends in ED use
- Correlations between ED use and environmental events
- Emerging infectious diseases
- Occurrence of non-fatal, preventable illness
- ED visits and re-visits for some states

90

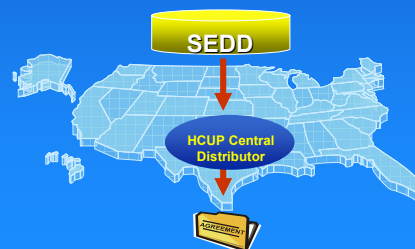
States with Emergency Department Databases

- Connecticut
- Georgia
- Hawaii
- Indiana
- Iowa
- Maine
- Maryland
- Massachusetts
- Minnesota
- Missouri
- Nebraska
- New Hampshire
- New Jersey
- South Carolina
- Tennessee
- Utah
- Vermont

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SEDD: Availability and Prices

- SEDD available for 1999 - 2004
- Availability and prices vary by state and year
 - ~ \$20 per data-year to ~ \$3,200 per data-year



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A Joint Study by AHRQ and SAMHSA



This study links the 2002 SEDD and the SID for Missouri and South Carolina to capture visits and revisits for mental illness and substance use disorders—ED visits *and* inpatient admissions



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SEDD Database Documentation - Public - Microsoft Internet Explorer provided by The MEDSTAT Group

File Edit View Favorites Tools Help

Address <http://www.hcup-us.ahrq.gov/db/state/seddbdocumentation.jsp>

Skip Navigation

SEDD Database Documentation
The SEDD are a set of longitudinal State-specific emergency department (ED) databases included in the HCUP family. The SEDD capture discharge information on all emergency department visits that do not result in an admission. These databases are created by AHRQ through a Federal-State-Industry partnership.

[Home](#) [Databases](#) [Tools & Software](#) [Reports](#) [Technical Assistance](#)

State Emergency Department Databases (SEDD)

The SEDD are a set of longitudinal State-specific emergency department (ED) databases included in the HCUP family. The SEDD capture discharge information on all emergency department visits that do not result in an admission. Information on patients seen in the emergency room and then admitted to the hospital is included in the [State Inpatient Databases \(SID\)](#). The following links provide detailed database documentation for the SEDD.

Some documents are provided in Adobe® Acrobat® (PDF) format. The amount of time needed to access a document depends on your machine, browser, and Internet connection. PDF files require the Adobe® Acrobat® Reader™, which can be downloaded free of charge from [Adobe®](#). [PDF Help](#) provides instructions on how to work with PDF files.

<p>Restrictions on the Use of the SEDD</p> <ul style="list-style-type: none"> • SEDD Data Use Agreement (PDF file, 47 KB) <p>Description of SEDD Files</p> <ul style="list-style-type: none"> • Introduction to the SEDD (PDF file, 197 KB) • HCUP Quality Control Procedures (PDF file, 104 KB) Describes procedures used to assess data quality • File Composition (PDF file, 81 KB) Describes types of hospitals and types of records included in each SEDD <p>HCUP Tools: Labels and Formats</p> <ul style="list-style-type: none"> • Clinical Classifications Software (CCS) 	<p>Availability of Data Elements by State</p> <ul style="list-style-type: none"> • 1999-2002 (PDF file, 69 KB) <p>Description of Data Elements in the SEDD</p> <ul style="list-style-type: none"> • HCUP Coding Practices (PDF file, 16 KB) Describes how HCUP data elements are coded • HCUP Hospital Identifiers (PDF file, 82 KB) Describes data elements that characterize individual hospitals • Data Elements (PDF file, 506 KB)
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HCUP Has Five Types of Databases



State Inpatient Databases



Nationwide Inpatient Sample



Kids' Inpatient Database



State Ambulatory Surgery Databases



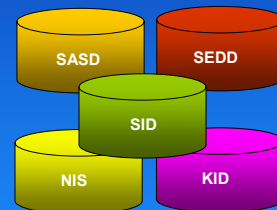
State Emergency Department Databases



Choosing the Right Database



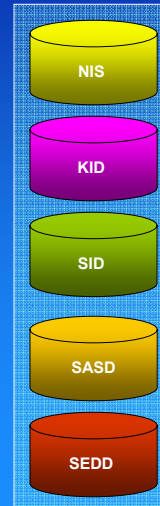
- What is my research question?
- Can my question be addressed by hospital administrative data?
- Should I look at inpatient and/or outpatient data?
- What variables do I need for my analysis?
- Do I want national estimates?
- Is my research limited to children?



Example: Choosing the Right Database

Research Topic: Are there racial differences in C-section rates in Maryland?

- Can my question be addressed by hospital administrative data?
- Should I look at inpatient and/or outpatient data?
- What variables do I need for my analysis?
 - Race
- Do I need national, state, or local data?
- Is my research limited to children?



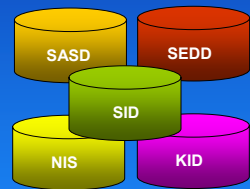
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Strengths of HCUP Data

- Represent largest source of longitudinal, all-payer encounter-level health care data
- Includes information on charges
- Protect individual and institutional confidentiality
- Have been benchmarked
- Permit trend analysis
 - NIS (1988-2003)
 - SID (1990-2004)
 - SASD (1997-2004)
 - SEDD (1999-2004)
- Link to other databases

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HCUP Links to Other Databases



**HCUP
Databases**

American Hospital Association
(AHA) Annual Survey

Health Resources and
Services Administration's
(HRSA) Area Resource
File (ARF)

ZIP Code files from Census
or Vendor

Medicare Cost Reports

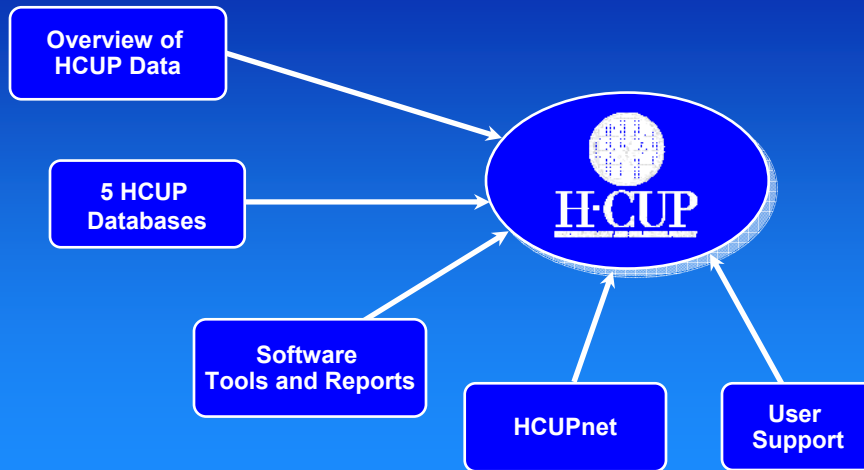
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Limitations of HCUP Data

- Cannot show complete episode of care
- Do not include all hospitals
- Lack revenue or cost information
- Contain varying data elements, depending on state

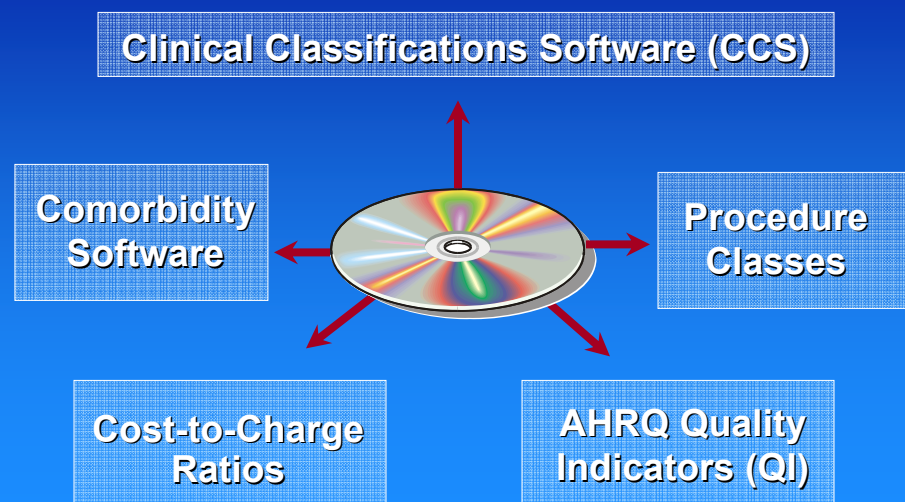
100

Outline of Presentation



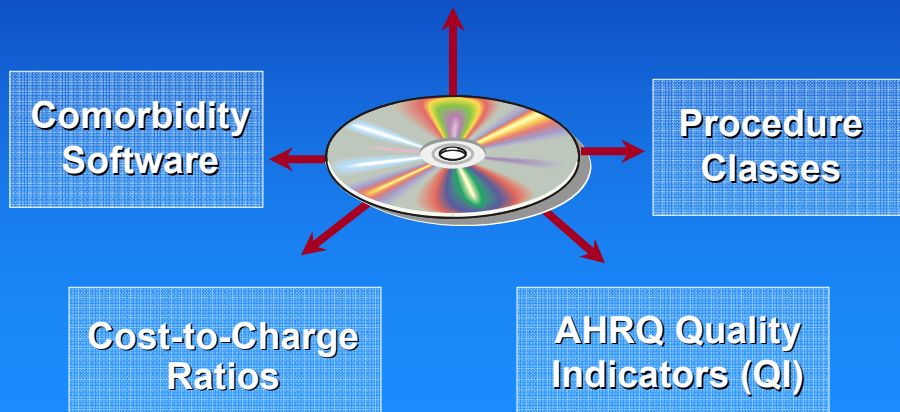
101

Current HCUP Tools



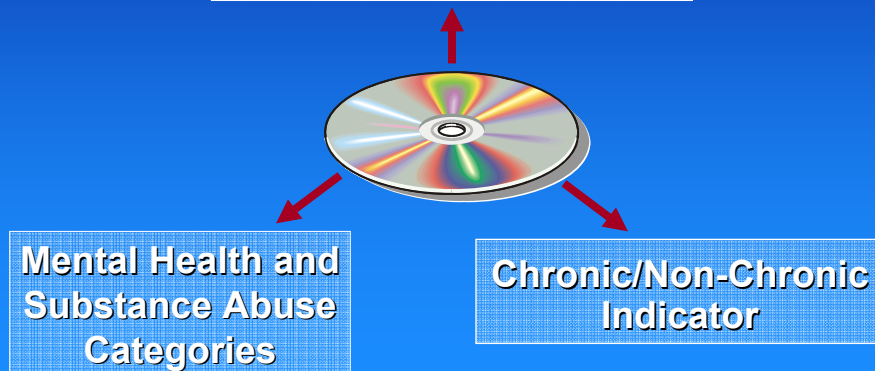
102

Clinical Classifications Software (CCS)



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**Clinical Classifications
Beta Software (CCS)
for CPT Codes (CCS-CPT)**



104

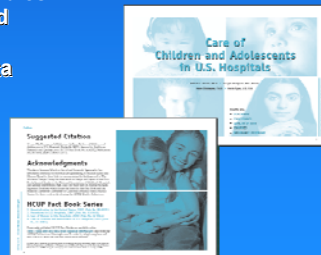
HCUP Provides Many Research Products

HCUP Research Products



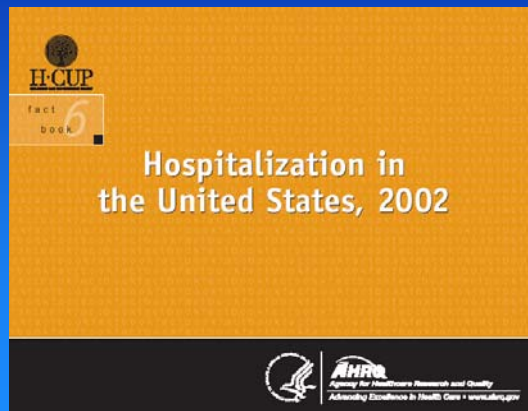
Products include:

- Research studies
- Statistics and Fact Books on HCUP Data

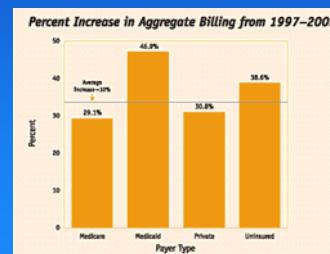


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Hospitalization Fact Book



Largest Increase in Aggregate Charges – Medicaid, 47% Increase from 1997 to 2002



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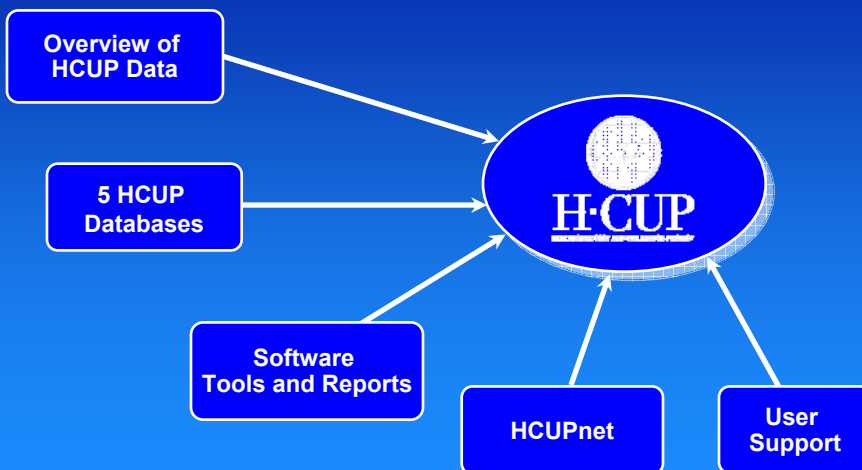


Hospital Admissions for Complications Associated with Diabetes



Significant decrease in the number of hospital admissions for complications associated with diabetes from 1994 to 2000.

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HCUPnet: Quick, Free Access to HCUP Data

- Free, interactive online query system
- Users generate tables of outcomes by diagnoses and procedures
- Data can be cross-classified by patient and hospital characteristics


<http://hcup.ahrq.gov/hcupnet>

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HCUPnet Can Answer a Variety of Questions


- What percentage of hospitalizations for children are uninsured, by state?
- What are the most expensive conditions treated in U.S. hospitals?
- What is the trend in admissions for depression?
- Will there be sufficient cases to do my analysis?
- How do my estimates compare with HCUPnet (validation)?

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A free, on-line query system based on HCUP data - provides access to health statistics and information on hospital stays at the national, regional, and State level.

[HCUPnet Home](#)
[HELP](#)
[Medical dictionary](#)
[What is HCUP ?](#)




[Contact Us](#)

HCUPnet is based on aggregate statistics tables to speed up data transfer and protect individual records, so not all possible queries can be addressed. If a query is not possible, HCUPnet will not allow you to choose certain parameters. If there is a query you'd like to see that HCUPnet does not support, please write us at hcup@ahrq.gov.



Internet Citation: HCUPnet; Healthcare Cost and Utilization Project; Agency for Healthcare Research and Quality, Rockville, MD.
<http://www.ahrq.gov/HCUPnet/>
 Last modified date 01/24/2006.



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Welcome to HCUPnet

- National and Regional Statistics from the NIS**
Create your own statistics for national and regional estimates on hospital use for all patients from the HCUP Nationwide Inpatient Sample (NIS). [Overview of the Nationwide Inpatient Sample \(NIS\)](#)
- National and Regional Statistics on Children Only from the KID**
Create your own statistics for national estimates on use of hospitals by children (age 0-17 years) from the HCUP Kids' Inpatient Database (KID). [Overview of the Kids' Inpatient Database \(KID\)](#)
- State Statistics from the SID**
Create your own statistics on stays in hospitals for participating States from the HCUP State Inpatient Databases (SID). [Overview of the State Inpatient Databases \(SID\)](#)
- Quick Statistics from the NIS, KID, or SID**
Ready-to-use tables on commonly requested information from the HCUP Nationwide Inpatient Sample (NIS), the HCUP Kids' Inpatient Database (KID), or the HCUP State Inpatient Databases (SID).
- AHRQ Quality Indicators**
Ready-to-use national information on measures of health care quality based on the NIS, using the AHRQ Quality Indicators (QIs). [AHRQ Quality Indicators Home Page](#)

First Time Visitor?

- [HCUPnet overview](#)
- [How does HCUPnet work?](#)
- [HCUPnet tutorial](#)
- [HCUPnet methodology](#)


What is HCUP?

- [Brief description - what is HCUP?](#)
- [Want to purchase data to do your own analysis?](#)

What's New?

- 2003 data for Kids' Inpatient Database (KID).
- New cost information for national hospital stays for 2003.
- 2003 data for Nationwide Inpatient Sample (NIS).
- 2002 nationwide data on AHRQ Quality Indicators.
- New cost information for national hospital stays for 2002.
- 2003 data for selected States.

The statistics in HCUPnet would not be possible without [statewide data collection projects](#) that provide data to HCUP.



National and regional estimates on hospital use for all patients from the HCUP Nationwide Inpatient Sample (NIS)

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[Home](#)

[Lay or researcher](#)

How would you describe yourself?


Click [▶](#) to make your selection.

- Lay person, data novice**
Try this if you are unfamiliar with health care data, but if you don't find what you're looking for, try the Researcher path below.
- Researcher, medical professional**




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<http://www.ahrq.gov/HCUPnet/>
 Last modified date 09/16/2004.



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[Lay or researcher](#)

Select type of query

Definitions

Follow the **Specific Diagnoses or Procedures** link if you're interested in detailed statistics about specific conditions or diseases affecting hospitalized patients, or in detailed statistics about specific surgeries or diagnostic tests performed on patients in the hospital.

Follow the **All U.S. Hospital Stays** link if you're interested in statistics about all patients in general, not specific diagnoses or procedures.

Follow the **Trends** link if you want to see tables and graphs with trends over time.

Follow the **Rank Order** link if you'd like to rank diagnoses or procedures by such factors as number of discharges, charges, or in-hospital mortality rate.

Select the type of query you want:

- ▶ **Statistics on specific diagnoses or procedures**
Information on specific diagnoses and procedures for a single year (select year on the next page)
- ▶ **Statistics on all U.S. hospital stays**
Information on all stays for a specific year, not by diagnoses or procedures (select year on the next page)
- ▶ **Trends**
National trends on all stays, diagnoses, and procedures from 1993 to 2003
- ▶ **Rank order specific diagnoses or procedures**
Rank diagnoses or procedures by key outcomes and measures such as number of discharges and total charges

H-CUPnet

National and regional estimates on hospital use for all patients from the HCUP Nationwide Inpatient Sample (NIS)

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Select type of query

Select diagnoses or procedures

Definitions

ICD-9-CM stands for the "International Classification of Diseases - 9th revision - Clinical Modification." All diagnoses (or conditions) and all procedures that patients receive in the hospital are assigned an ICD-9-CM code. [>more>](#)

Clinical Classifications Software (CCS) categorizes patient diagnoses and procedures into a manageable number of clinically meaningful categories. [>more>](#)

Diagnosis Related Groups (DRGs) comprise a patient classification system that categorizes patients into groups that are clinically coherent and homogeneous with respect to resource use. [>more>](#)


Major Diagnosis Categories (MDCs) are broad groups of DRGs (Diagnosis Related Groups) that relate to an organ or a system (digestive system, for example) and not to an etiology. [>more>](#)

Related conditions and procedures This option allows you to select a principal diagnosis or procedure and examine **related diagnoses or procedures**. [>more>](#)

Do you want information on:

- ▶ All patients (no breakdowns by diagnosis or procedure)?
- ▶ Specific diagnoses by ICD-9-CM?
- ▶ Diagnoses grouped by Clinical Classifications Software (CCS)?
- ▶ Diagnosis Related Groups (DRGs)?
- ▶ Major Diagnostic Categories (MDCs)?
- ▶ Specific procedures by ICD-9-CM?
- ▶ Procedures grouped by Clinical Classifications Software (CCS)?

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H-CUPnet

National and regional estimates on hospital use for all patients from the HCUP Nationwide Inpatient Sample (NIS)

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HCUPnet

[Home](#) [Lay or researcher](#) [Select type of query](#) [Select diagnoses or procedures](#) **Select codes** [Verify codes](#) [Outcomes and measures](#) [Results](#)

Search for DRG category

Enter the DRG number or the name of a diagnosis to search for the category.

☒ any
 ☐ all
 ☐ phrase

[OR]

Browse all DRGs

Hold the control key down and click to make multiple selections


-All DRGs-

NERVOUS SYSTEM

- 1 Craniotomy age >17 except for trauma (before Sep 30, 2002)
- 1 Craniotomy age >17 w cc (after Oct 1, 2002)
- 2 Craniotomy for trauma age >17 (before Sep 30, 2002)
- 2 Craniotomy age >17 w/o cc (after Oct 1, 2002)
- 3 Craniotomy age 0-17
- 4 Spinal procedures
- 5 Extracranial vascular procedures

Internet Citation: HCUPnet, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/HCUPnet/> Last modified date 04/2006.

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Home

[Lay or researcher](#) [Select type of query](#) [Select diagnoses or procedures](#) [Select codes](#) **Verify codes** [Outcomes and measures](#) [Results](#)

Diagnosis Related Group Selection

1 category met the specified criteria. (The label contains "288".)

Please select one or more Diagnosis Related Groups:

288 O.R. procedures for obesity

(Hold the control key down and click to make multiple selections.)

Internet Citation: HCUPnet, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/HCUPnet/> Last modified date 09/16/2004.

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HCUPnet Citation: HCUPnet, Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/HCUPnet/> modified date 12/4/2006.

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[Select type of query](#)
[Select diagnoses or procedures](#)
[Select codes](#)
[Verify codes](#)
[Outcomes and measures](#)
[Results](#)

Select outcomes and measures for which you want statistics

Check one or more

☐ Number of discharges
 ☐ Length of stay, mean
 ☐ Length of stay, median
 ☐ Hospital charges, mean
 ☐ Hospital charges, median

☐ Percent died in the hospital
 ☐ Discharge status
 ☐ Percent admitted from emergency department
 ☐ Percent admitted from another hospital
 ☐ Percent admitted from long term care facility

>> Next >>

Definitions

The unit of analysis for HCUP data is the hospital **discharge** (i.e., the hospital stay), not a person or patient. [>more>](#)

Length of stay is the number of nights the patient remained in the hospital for this stay. [>more>](#)

Hospital charges is the amount the hospital charged for the entire hospital stay. It does not include professional (MD) fees. [>more>](#)

Died generally indicates in-hospital mortality. Some unknown number of cases may have died outside the hospital, but still be included in HCUPnet.

Discharge status indicates the disposition of the patient at discharge from the hospital, e.g., routine (home), to another short term hospital, to a nursing home, to home health care, or against medical advice (AMA).

Emergency admission indicates the patient was admitted to the hospital through the emergency department.

Admission from another hospital indicates the patient was admitted to this hospital from another short term, acute-care hospital. [>more>](#)

Admission from long term care facility indicates the patient was admitted from a long term facility such as a nursing home.

Costs Total charges were converted

National and regional estimates on hospital use for all patients from the HCUP Nationwide Inpatient Sample (NIS)

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[Select type of query](#)
[Select diagnoses or procedures](#)
[Select codes](#)
[Verify codes](#)
[Outcomes and measures](#)
[Results](#)

Results

[Display a printer-friendly version \(Try printing in landscape for best results\)](#)
[Save as an Excel spreadsheet](#)
[Show Graphs of Trend Data](#)
[Run a new query on this database - keep all previous selections](#)
[HCUPnet home - keep all previous selections](#)
[HCUPnet home - clear all previous selections](#)

Ends

HCUPnet provides trend information for the 11 year period: 1993-2003

Number of discharges

Diagnosis Related Group and name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
288 [O.R. procedures for obesity]	11,527	12,517	10,964	12,472	16,042	18,395	27,431	36,024	58,672	77,335	119,443

Number of discharges - Standard Errors

Diagnosis Related Group and name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
288 [O.R. procedures for obesity]	2,563	3,160	2,389	3,078	3,287	2,193	4,486	4,799	7,078	8,687	10,365

National estimates from HCUP Nationwide Inpatient Sample (NIS), Agency for Healthcare Research and Quality (AHRQ), based on data collected by individual states and provided to AHRQ by the States. Statistics based on estimates with a relative standard error (standard error / weighted estimate) greater than 0.30 or with error = 0 in the nationwide statistics (NIS and KID) are not reliable. These statistics are suppressed and are designated with an asterisk (*). The estimates of standard errors in HCUPnet were calculated using SUDAAN software. These estimates may differ slightly if other software packages are used to calculate variances.

HCUPnet: A tool for identifying, tracking, and analyzing national hospital statistics - Microsoft Internet Explorer provided by

http://hcup.ahrq.gov - Z-Test Calculator - Mi...

Z-Test Calculator

Estimate Standard Error

Estimate 1:

Estimate 2:

Standard Error:

Calculate

Results:

Standard Error:

z Statistic:

p-value (two-tail):

Significant at p<.001 ***

Calculate

HCUPnet Home

HELP

Medical dictionary

What is HCUP?

Select diagnoses or procedures Select codes Verify codes Outcomes and measures Results

Save as an Excel spreadsheet

Show Graphs of Trend Data

Run a new query on this database - **keep** all previous selections

HCUPnet home - **keep** all previous selections

HCUPnet home - **clear** all previous selections

ends

HCUPnet provides trend information for the 11 year period: 1993-2003

Number of discharges

Diagnosis Related Group and name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
288 O.R. procedures for obesity	11,527	12,517	10,964	12,472	16,042	18,395	27,431	36,024	58,672	77,335	119,443

start

Microsoft O... HCUPnet: A to... http://hcup.ah... PUBH 260 ASST... Windows Ex... Microsoft Powe...

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File Edit View Favorites Tools Help

http://hcup.ahrq.gov - Z-Test Calculator - Mi...

Z-Test Calculator

Estimate Standard Error

Estimate 1: 16,042 3,287

Estimate 2: 119,443 10,365

Calculate

Results:

Standard Error: 10,873.71114

z Statistic: 9.50926

p-value (two-tail): 0.00000

Significant at p<.001 ***

Calculate

Done

Internet

Save as an Excel spreadsheet

Show Graphs of Trend Data

Run a new query on this database - **keep** all previous selections

HCUPnet home - **keep** all previous selections

HCUPnet home - **clear** all previous selections

HCUPnet provides trend information for the 11 year period: 1993-2003

Number of discharges

Diagnosis Related Group and name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
288 O.R. procedures for obesity	11,527	12,517	10,964	12,472	16,042	18,395	27,431	36,024	58,672	77,335	119,443

Number of discharges - Standard Errors

Diagnosis Related Group and name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
288 O.R. procedures for obesity	2,563	3,160	2,389	3,078	3,287	2,193	4,486	4,799	7,078	8,687	10,365

Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), Agency for Healthcare Research and Quality (AHRQ), based on data collected by individual States and provided to AHRQ by the States. Statistics based on estimates with a relative standard error (standard error / weighted estimate) greater than 0.30 or with standard error = 0 in the nationwide statistics (NIS and KID) are not reliable. These statistics are suppressed and are designated with an asterisk (*). The estimates of standard errors in HCUPnet were calculated using SUDAAN software. These estimates may differ slightly if other software packages are used to calculate variances.

National and regional estimates on hospital use for all patients from the HCUP Nationwide Inpatient Sample (NIS)

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[Verify codes](#)
[Outcomes and measures](#)
[Results](#)

Results

[Display a printer-friendly version \(Try printing in landscape for best results\)](#)
[Save as an Excel spreadsheet](#)
[Show Graphs of Trend Data](#)
[Run a new query on this database - keep all previous selections](#)
[HCUPnet home - keep all previous selections](#)
[HCUPnet home - clear all previous selections](#)

Ends

HCUPnet provides trend information for the 11 year period: 1993-2003

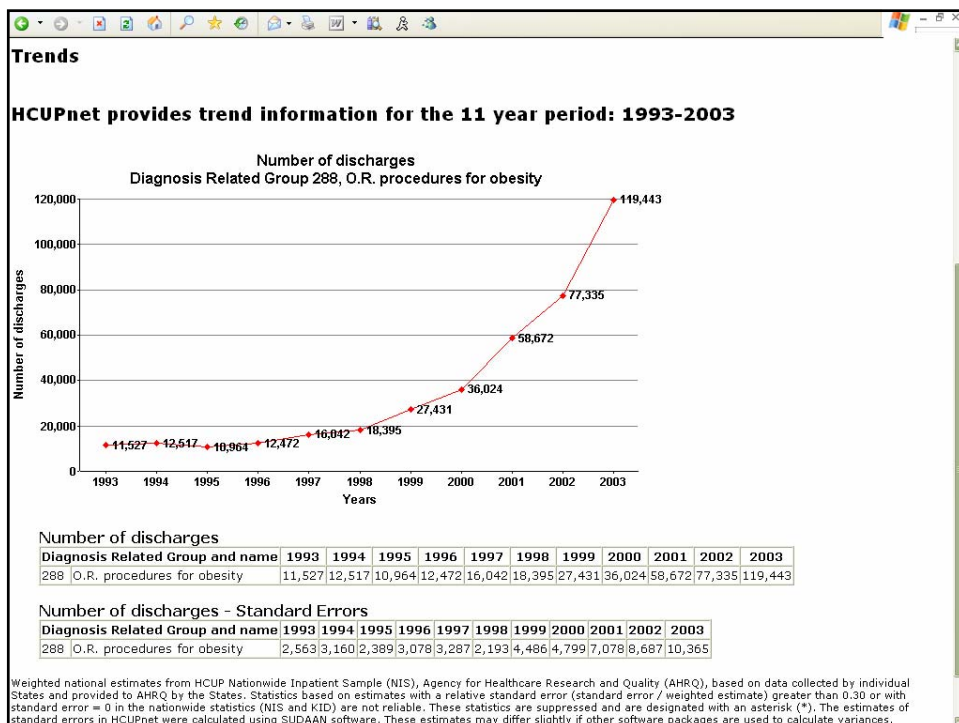
Number of discharges

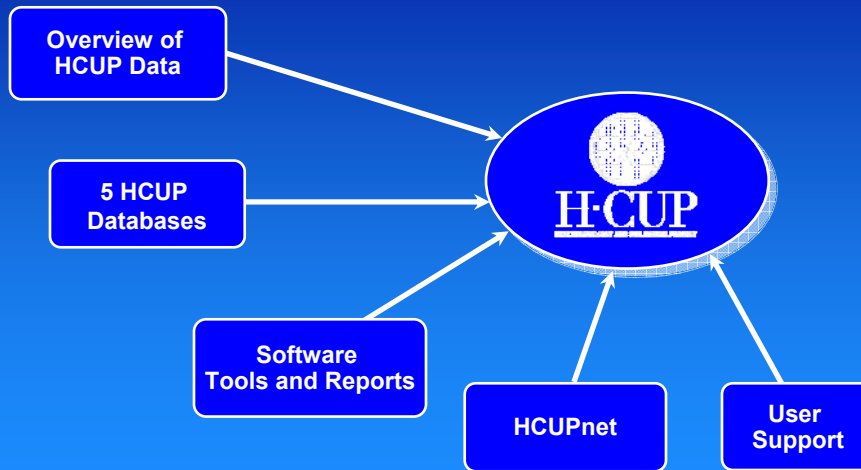
Diagnosis Related Group and name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
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Number of discharges - Standard Errors

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Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), Agency for Healthcare Research and Quality (AHRQ), based on data collected by individual States and provided to AHRQ by the States. Statistics based on estimates with a relative standard error (standard error / weighted estimate) greater than 0.30 or with standard error = 0 in the nationwide statistics (NIS and KID) are not reliable. These statistics are suppressed and are designated with an asterisk (*). The estimates of standard errors in HCUPnet were calculated using SUDAAN software. These estimates may differ slightly if other software packages are used to calculate variances.





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- Find detailed information on HCUP databases, tools, and products
- Access HCUPnet
- Find comprehensive listing of HCUP-related publications, database reports, and fact books
- Access technical assistance

<http://www.hcup-us.ahrq.gov>

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How to Obtain HCUP Data through the HCUP Central Distributor

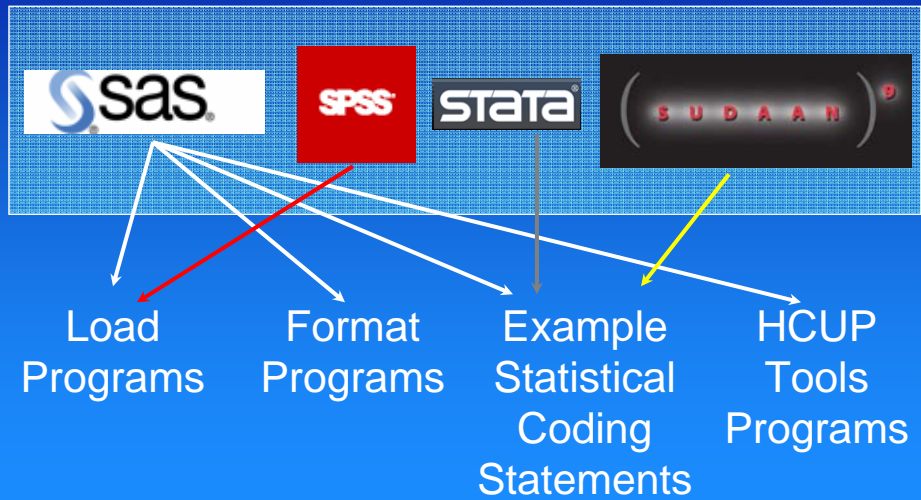
- **Step 1:** Request application kit:
http://www.hcup-us.ahrq.gov/tech_assist/centdist.jsp
- **Step 2:** Obtain more information (if needed):
Phone: 866-556-HCUP (4287) toll free
E-mail: HCUPDistributor@ahrq.gov
- **Step 3:** Read and sign the Data Use Agreement (DUA)
- **Step 4:** Send order form, DUA, and payment to HCUP
Central Distributor

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Software Requirements



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Active Technical Assistance

- Responds to inquiries about HCUP data, products, and tools
- Collects user feedback and suggestions for improvement

E-mail: hcup@ahrq.gov

Phone: (866) 290-HCUP

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How to Learn More About HCUP

- **General Information (or suggestions)**
 - <http://www.hcup-us.ahrq.gov/home.jsp>
- **HCUP Central Distributor**
 - E-mail: HCUPDistributor@ahrq.gov ;
 - Phone: 1-866-556-HCUP (4287)
- **HCUPnet**
 - <http://hcup.ahrq.gov/HCUPnet.asp>
- **Technical Assistance—HCUP User Support**
 - E-mail: hcup@ahrq.gov;
 - Phone: 1-866-290-HCUP (4287)

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Healthcare Cost and Utilization Project (HCUP)



THE LARGEST COLLECTION OF LONGITUDINAL,
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